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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/813,590	TONG ET AL.	
	Examiner	Art Unit	
	Kuen S. Lu	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 6/18/2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-31 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-31 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Please note Applicant's Amendment filed June 8, 2007 has been entered.

Response to Amendments

2. The Action is responsive to the Applicant's Amendments and RCE, filed between June 4, 2007 and June 18, 2007. Acknowledged are claims 1, 11, 13, 21-22, 24 and 26-31 amended and amendments made to specification. Examiner's objections to specification and rejections to claims 21-29 under 35 USC § 101 and to claims 1, 11, 13, 21-22, 24, 26-27 and 30-31 under 35 USC § 112, the second paragraph are hereby withdrawn, as necessitated by the Amendments.

Response to Arguments

3. Applicant's arguments filed June 4, 2007 with respect to claims 1, 11, 21, 27 and 30-31 have been considered but are moot in view of the new ground(s) of rejection.

4. Please note claims 1-31 in the application are pending.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5.1. Claims 1-2, 11, 21, 27 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bode et al. (U.S. Patent Application 2003/0115187, hereafter "Bode").

As per claim 1, Bode teaches "A method of detecting stopwords in a query" (See Fig. 12 and [0132] where stopwords in a query is determined) comprising:

"identifying a potential stopword in the query based on a comparison to a list of stopwords" (See Fig. 12 and [0132] where words in a query compared to a list of stopwords to determined if the words are stopwords); and

"generating a plurality of sets of context data based on the query and the potential stopword" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with or without bearing stopwords) and

"comparing the sets of context data" (See [0103] where effectiveness of a particular searches is compared to other searches).

Concerning "classifying the potential stopword either as an actual stopword or a non-stopword based on the comparing", Bode teaches using multiple information-bearing terms for searching documents and recognizing some search term(s) fails to appear in any returned document at [0111].

Bode does not explicitly teach classifying such no-show term(s) as stopword(s).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to classifying non-effective search terms in a query as stopwords because it would have improve efficiency of a search engine by eliminating irrelevant and ambiguous terms from a query input to avoid excess irrelevant information is returned in which insufficient relevant information is available.

As per claims 11, 27 and 30, Bode teaches a method, a device comprising means for and instructions on medium, respectively, to perform the following:
"identifying potential stopwords in a query" (See Fig. 12 and [0132] where words in a query compared to a list of stopwords to determined if the words are stopwords);
"generating context data based on the query and the potential stopwords" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with or without bearing stopwords); and
"performing a comparison of the context data" (See [0111] where search result documents is returned and compared to identify information-bearing query terms in the

returned documents).

Concerning "designating at least one of the potential stopwords as a non-stopword based on the comparison" and "designating actual stopwords from among the potential stopwords based on the comparison", Bode teaches using multiple information-bearing terms for searching documents and recognizing some search term(s) fails to appear in any returned document at [0111].

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to classifying non-effective search terms as stopwords and the effective search terms as non-stopwords in a query because it would have improve efficiency of a search engine by eliminating irrelevant and ambiguous terms from a query input to avoid excess irrelevant information is returned in which insufficient relevant information is available.

Bode further teaches "rewriting the query to remove one or more of the actual stopwords from the query" (See [0123] where stopwords are removed in the long query).

As per claim 21, Bode teaches a system comprising:

"a parser component configured to receive a search query and identify potential stopwords in the search query" (See Fig. 12 and [0132] where a query is received, parsed and whose words in the query are compared to a list of stopwords to determined if the words are stopwords); and

"a context generation component to generate context data based on the search query

and the potential stopwords" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with or without bearing stopwords).

Concerning "a comparator component to compare the context data to determine those of the potential stopwords that are actual stopwords and those of the potential stopwords that are non-stopwords", Bode teaches using multiple information-bearing terms for searching documents and recognizing some search term(s) fails to appear in any returned document at [0111].

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to classifying non-effective search terms as stopwords and the effective search terms as non-stopwords in a query because it would have improve efficiency of a search engine by eliminating irrelevant and ambiguous terms from a query input to avoid excess irrelevant information is returned in which insufficient relevant information is available.

As per claim 31, Bode teaches "a document retrieval system comprising a search engine" (See Abstract where systems are implemented to search documents) configured to:

"receive a user search query" (See Fig. 11 and [0104] where user query is received), "receive rewritten versions of the search query that exclude stopwords from the user search query" (See [0123] where stopwords are removed in the long query), and "perform a search of a document index based on the rewritten versions of the search

query" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with or without bearing stopwords); and

"a stopword detection component to rewrite the search query, the stopword detection component including:

a parser component configured to receive the user search query and identify potential stopwords in the search query" (See Fig. 12 and [0132] where words in a query compared to a list of stopwords to determined if the words are stopwords); and

"a context generation component to generate context data based on the search query and the potential stopwords" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with stopwords).

Concerning "a comparator component to compare the context data to determine which of the potential stopwords are actual stopwords and which of the potential stopwords are non-stopwords to be included in at least one of the rewritten versions of the search query", Bode teaches using multiple information-bearing terms for searching documents and recognizing some search term(s) fails to appear in any returned document at [0111].

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to classifying non-effective search terms as stopwords and the effective search terms as non-stopwords in a query because it would have improve efficiency of a search engine by eliminating irrelevant and ambiguous terms

from a query input to avoid excess irrelevant information is returned in which insufficient relevant information is available.

As per claim 2, Bode teaches "The method **of** claim 1, further comprising: rewriting the query to remove the actual stopword from the query" (See Pages 15 and 14, claims 17, 15, 13 and 1 where search is performed based on different query classes, including query with or without bearing stopwords).

5.2. Claims 3-20, 22-26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bode et al. (U.S. Patent Application 2003/0115187, hereafter "Bode"), as applied to 1, 11, 21, 27 and 30-31, and further in view of McGreevy (U.S. Patent Application 2003/0004914)..

As per claim 3, Bode teaches identifying stopwords in a query and performing searches on different query classes with or without stopwords as described previously in claims 1, 11, 21, 27 and 30-31 rejections.

Bode does not explicitly teach that "the potential stopword includes a plurality of stopwords and each of the plurality of sets of context data corresponds to a combination of the potential stopwords".

However, McGreevy teaches "the potential stopword includes a plurality of stopwords and each of the plurality of sets of context data corresponds to a combination of the potential stopwords" (See Pages 17-18, [0198] and [0202] where

relevance of query relation to stopterms is weighted for eliminating the relations in a query model, and relations created from a first and a second query terms are eliminated from query model if the relations fall in the collections of stop relations).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine the teaching of McGreevy with Bode reference by implementing relational models on Bode search system because both references are directed to improve search accuracy by meeting user's request where McGreevy utilizes relational models to identify relevant subset and Bode teaches accurately identifying stopwords from query string and comparing results from searches with or without the stopwords, the combined teaching would have allowed Bode system to improve accuracy of search result by further identifying a plurality of relevant subsets and selecting the most appropriate one for output.

As per claim 4, McGreevy further teaches "The method of claim 1, wherein comparing the sets of context data includes comparing the sets of context data to one another to determine whether various ones of the plurality of sets of context data are substantially similar" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 5, McGreevy further teaches the method of claim 1, wherein generating the plurality of sets of context data includes:

"generating a first set of context data from the query" (See Pages 17-18, [0194], [0198] and [0202] where query includes a number of query fields in a query model is generated and parsed); and

generating a second set of context data from a version of the query in which the potential stopword is removed" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 6, McGreevy further teaches the method of claim 1, wherein generating the plurality of sets of context data includes:

"deriving a plurality of second queries from the query and the potential stopword" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model); and

"querying a database using the plurality of second queries" (See Pages 17-18, [0198] and [0202] where a query model is modified as a function of stopterms in the query).

As per claim 7, McGreevy further teaches "The method of claim 6, wherein querying the database includes issuing the plurality of second queries to a search engine, and wherein the potential stopword includes a plurality of potential stopwords and the plurality of second queries are derived from combinations of the potential stopwords plus terms in the query that are not potential stopwords" (See Page 16, [0186] where keyterm and its context relevance are used to query a database, at Page 17, [0196] where stopterms are added to or removed from a list, and at Pages 17-18, [0198] and

[0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 8, McGreevy further teaches the method of claim 1, wherein generating the plurality of sets of context data includes:
"deriving a plurality of second queries from the query and the potential stopword" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation); and
"locating categories relevant to the second queries using a category generator" (See Pages 17-18, [0198] and [0202] where relations are created from a first and a second query terms which are eliminated from query model if the relations fall in the collections of stop relations).

As per claim 9, McGreevy further teaches "The method of claim 8, wherein the potential stopword includes a plurality of potential stopwords and plurality of second queries are derived from combinations of the potential stopwords plus terms in the query that are not potential stopwords" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation).

As per claim 10, McGreevy further teaches "The method of claim 1, wherein the potential stopword includes a stop-phrase" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model, and relations created from a first and a second query terms are eliminated from query model if the relations fall in the collections of stop relations).

As per claim 12, McGreevy further teaches "The method of claim 11, wherein generating the context data includes: retrieving a plurality of sets of context data in which each said set corresponds to a different combination of the potential stopwords" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation).

As per claim 13, McGreevy further teaches "The method of claim 12, further comprising wherein the designating the actual stopwords includes:
comparing the plurality of sets of context data to one another to determine whether various ones of the plurality of sets of context data are substantially similar,
wherein rewriting the query to remove the one or more actual stopwords is based on the comparison of the plurality of sets of context data" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the

relations in a query model).

14. The method of claim 11, wherein generating the context data includes:

As per claim 14, McGreevy further teaches the method of claim 11, wherein generating the context data includes:

"generating a first set of context data as context data derived from the query" (See Pages 17-18, [0194], [0198] and [0202] where query includes a number of query fields in a query model is generated and parsed); and

"generating a second set of context data as context data derived from a version of the query in which one or more potential stopwords are removed" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 15, McGreevy further teaches the method of claim 11, wherein generating the context data includes:

"deriving a plurality of second queries from the query and the potential stopwords" (See Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model); and

"querying a database using the plurality of second queries" (See Pages 17-18, [0198] and [0202] where a query model is modified as a function of stopterms in the query).

As per claim 16, McGreevy further teaches the method of claim 15, wherein the plurality of second queries are derived from combinations of the potential stopwords

plus terms in the query that are not potential stopwords" (See Page 16, [0186] where keyterm and its context relevance are used to query a database, at Page 17, [0196] where stopterms are added to or removed from a list, and at Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 17, McGreevy further teaches the method of claim 11, wherein generating the context data includes:

"deriving a plurality of second queries from the query and the potential stopwords" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation); and

"issuing the plurality of second queries to a category generator to locate categories relevant to the second queries" (See Pages 17-18, [0198] and [0202] where relations are created from a first and a second query terms which are eliminated from query model if the relations fall in the collections of stop relations).

As per claim 18, McGreevy further teaches the method of claim 17, wherein "the plurality of second queries are derived from combinations of the potential stopwords plus terms in the query that are not potential stopwords" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in

phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation).

As per claim 19, McGreevy further teaches the method of claim 11, wherein "identifying the potential stopwords includes: matching terms in the query to a pre-defined list of stopwords" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation).

As per claim 20, McGreevy further teaches the method of claim 11, wherein the "potential stopwords include potential stopwords and stop-phrases" (See Fig. 13 and Page 17-18, [0194]-[0198] where a query model is detected for its relations containing stopterms in phrase search and the query model is modified and stop relation is blocked based on a collection of the related concepts described by the stop relation).

As per claim 22, McGreevy further "The system of claim 21, wherein, when the comparator determines that one **or more of** the potential stopwords are actual stopwords, the search query is re-written to a form that does not include the one or more actual stopword" (See McGreevy: Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model, and relations created from a first and a second query terms are eliminated from query model if the relations fall in the collections of stop relations).

As per claim 23, McGreevy further teaches the system of claim 21, wherein "the context generation component includes a search engine" (See McGreevy: Fig. 23 and Page 38, [0388] where embodiment of system for phrase search includes a processor).

As per claim 24, the combined teaching of the McGreevy and Wan references further teaches the system of claim 23, wherein "the comparator component compares sets of documents returned from the search engine to determine those of the potential stopwords that effect generation of the context data that differ from context data unassociated with those potential stopwords" (See McGreevy: Pages 17-18, [0198] and [0202] where query terms pair is created from selected query model and compared to the relations in query model for determining the relation pair is blocked, reversed or other processing).

As per claim 25, the combined teaching of the McGreevy and Wan references further teaches the system of claim 21, wherein "the context generation component includes a category generator configured to locate category lists relevant to a search query" (See McGreevy: Pages 17-18, [0198] and [0202] where relations are created from a first and a second query terms which are eliminated from query model if the relations fall in the collections of stop relations).

As per claim 26, the combined teaching of the McGreevy and Wan references further

teaches "The system of claim 25, wherein the comparator component compares category lists to one another to determine those of the potential stopwords that effect generation of the context data differs from context data unassociated with those potential stopwords" (See McGreevy: Pages 17-18, [0198] and [0202] where relevance of query relation to stopterms is weighted for eliminating the relations in a query model).

As per claim 28, McGreevy further teaches the device of claim 27, further comprising:

"means for searching a document index to locate a set of documents and return the set of documents to the means for generating context data" (See Page 16, [0186 where documents are searched, retrieved and sorted on their relevance to the keyterm in context).

As per claim 29, McGreevy further teaches the device of claim 27, further comprising: "means for locating a list of categories relevant to an input category query and returning the list of categories to the means for generating context data" (See Page 29, [0326] where phrase extraction from query can include sets of special terms to determine the extent of term allowed to appear in a particular position within a phrase).

Conclusion

6. The prior art made of record

A. U.S. Patent Application 2003/0004914

J. U.S. Patent Application 2003/0115187

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. Chang et al.: "Predicate Rewriting for Translating Boolean Queries in a Heterogeneous Information System, ACM Transactions on Information Systems, Vol. 17, No. 1, January 1999

B. U.S. Patent Application 2003/0233618

C. U.S. Patent No. 6,477,524

D. U.S. Patent No. 6,360,215

E. U.S. Patent Application 2004/0088308

F. U.S. Patent Application 2003/0088562

G. U.S. Patent Application 2003/0069877

H. U.S. Patent Application 2004/0215608

I. U.S. Patent Application 2004/0068697

J. U.S. Patent No. 7,039,631

K. U.S. Patent No. 6,804,662

Contact Information

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kuen S. Lu whose telephone number is (571) 272-4114. The examiner can normally be reached on Monday-Friday (8:00 am-5:00 pm). If attempts to reach the examiner by telephone pre unsuccessful, the examiner's Supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 703-

305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for Page 13 published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 703-305-3900 (toll free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, please call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kuen S. Lu

Patent Examiner, Art Unit 2167

July 29, 2007